

CORNING GLASS WORKS  
ELECTRO-OPTICS DEPARTMENT  
RALEIGH, NORTH CAROLINA

IMPROVED SCREEN FOR REAR-PROJECTION VIEWERS

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## 1. Introduction

As reported previously, the most promising substrate for a crossed-lenticular test screen is a special run of Kodak 649 GH emulsion on 2.5-mil Estar® polyester with clear gelatin backing. Delivery of this material is expected soon. Meanwhile casting techniques are being refined on a similar substrate (2.5-mil Estar® polyester with clear gelatin backing) with less suitable photographic properties. Fogging of the emulsions during epoxy casting has been investigated on a Kodak 649 GH emulsion and on Kodalith Ortho® emulsion. The optical quality of the lenticules is being investigated with an eye toward improvement.

## 2. Epoxy Casting and Emulsion Fogging

The epoxy lenticules must be cast on the substrate with firm, uniform adhesion, maintaining constant film thickness, and without fogging the emulsion. Various epoxy temperatures and epoxy-hardener ratios were tried on 2.5-mil Kodak Estar® polyester with clear gelatin backing and 3493 RAR emulsion. It was found possible to control the epoxy viscosity by varying the epoxy-hardener ratio without applying heat. Successful castings were made at room temperature, providing one means of preventing thermal fogging.

Thermal fogging of the Kodalith Ortho® emulsion was found to be negligible at casting temperatures as high as 65°C. Thus if rigorous darkroom procedures are maintained, fogging should not be a problem even for this emulsion. The 649 GH, which is much less sensitive, is still less prone to fogging.

## 3. Optical Quality of Lenticules

Examination of the polypropylene mold and the epoxy castings with a scanning electron microscope revealed a number of defects affecting the optical quality. The most

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serious of these is a periodic waviness along the length of the lenticules. That is, the height of a given lenticule varies by about 1 or 2 microns in about 12 microns of length. The effect of this on screen performance, and possible means of obtaining smoother lenticules, are being investigated.

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